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**IN THE UNITED STATES DISTRICT COURT  
FOR THE SOUTHERN DISTRICT OF CALIFORNIA**

LIFE TECHNOLOGIES CORPORATION,  
MOLECULAR PROBES, INC. and THE  
REGENTS OF THE UNIVERSITY OF  
CALIFORNIA,

Plaintiffs-Counterclaim Defendants,

v.

EBIOSCIENCE, INC.,

Defendant-Counterclaim Plaintiff.

Civil Action No. 10-CV-2127-IEG (NLS)

**NOTICE OF PATENT OFFICE ORDER  
GRANTING REQUEST FOR  
REEXAMINATION OF  
PATENTS-IN-SUIT NO. 6,423,551**

**Judge: Honorable Irma E. Gonzalez**

The Court recently took under submission eBioscience's motion to stay this case pending the outcome of requests seeking reexamination of the patents-in-suit. Defendant, eBioscience, Inc., is submitting this paper to advise the Court and the plaintiffs that the United States Patent &

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2  
3 Trademark Office (“USPTO”) has granted the Request for Ex Parte Reexamination of U.S.  
4 Patent No. 6,423,551, which was filed on May 13, 2011. A copy of the “Order Granting Request  
5 for Ex Parte Reexamination” is attached hereto.

6 . The USPTO has not yet ruled on the other separate requests that were filed seeking  
7 reexamination of the other patents-in-suit.  
8  
9  
10

11 Dated: June 28, 2011

Respectfully submitted,

12 /s/ Richard A. Clegg

13 \_\_\_\_\_  
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## UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
90/009,910	05/13/2011	6423551	079429.0105	3037

24353 7590 06/24/2011

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EXAMINER

ART UNIT

PAPER NUMBER

DATE MAILED: 06/24/2011

Please find below and/or attached an Office communication concerning this application or proceeding.



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**EX PARTE REEXAMINATION COMMUNICATION TRANSMITTAL FORM**

REEXAMINATION CONTROL NO. 90/009,910.

PATENT NO. 6423551.

ART UNIT 3991.

Enclosed is a copy of the latest communication from the United States Patent and Trademark Office in the above identified *ex parte* reexamination proceeding (37 CFR 1.550(f)).

Where this copy is supplied after the reply by requester, 37 CFR 1.535, or the time for filing a reply has passed, no submission on behalf of the *ex parte* reexamination requester will be acknowledged or considered (37 CFR 1.550(g)).

<b>Order Granting / Denying Request For Ex Parte Reexamination</b>	<b>Control No.</b>	<b>Patent Under Reexamination</b>	
	90/009,910	6423551	
	<b>Examiner</b>	<b>Art Unit</b>	
	PADMASHRI PONNALURI	3991	

**--The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

The request for *ex parte* reexamination filed 13 May 2011 has been considered and a determination has been made. An identification of the claims, the references relied upon, and the rationale supporting the determination are attached.

Attachments: a) ☐ PTO-892, b) ☒ PTO/SB/08, c) ☐ Other: \_\_\_\_\_

1. ☒ The request for *ex parte* reexamination is GRANTED.

**RESPONSE TIMES ARE SET AS FOLLOWS:**

For Patent Owner's Statement (Optional): TWO MONTHS from the mailing date of this communication (37 CFR 1.530 (b)). **EXTENSIONS OF TIME ARE GOVERNED BY 37 CFR 1.550(c).**

For Requester's Reply (optional): TWO MONTHS from the **date of service** of any timely filed Patent Owner's Statement (37 CFR 1.535). **NO EXTENSION OF THIS TIME PERIOD IS PERMITTED.** If Patent Owner does not file a timely statement under 37 CFR 1.530(b), then no reply by requester is permitted.

2. ☐ The request for *ex parte* reexamination is DENIED.

This decision is not appealable (35 U.S.C. 303(c)). Requester may seek review by petition to the Commissioner under 37 CFR 1.181 within ONE MONTH from the mailing date of this communication (37 CFR 1.515(c)). **EXTENSION OF TIME TO FILE SUCH A PETITION UNDER 37 CFR 1.181 ARE AVAILABLE ONLY BY PETITION TO SUSPEND OR WAIVE THE REGULATIONS UNDER 37 CFR 1.183.**

In due course, a refund under 37 CFR 1.26 ( c ) will be made to requester:

- a) ☐ by Treasury check or,  
b) ☐ by credit to Deposit Account No. \_\_\_\_\_, or  
c) ☐ by credit to a credit card account, unless otherwise notified (35 U.S.C. 303(c)).

cc:Requester ( if third party requester )

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***Reexamination: Granting of Request***

***Procedural Posture:***

The Third Party Request filed on 5/13/11 for *ex parte* reexamination of claims 1-5, 7, 8, 10, 12 and 22-26 of United States Patent Number 6,423,551 to Weiss *et al* is acknowledged.

***Decision Granting the Order***

A substantial new question of patentability affecting claims 1-5, 7, 8, 10, 12 and 22-26 of United States Patent Number 6,423,551 (the '551 patent) is raised by the request for reexamination.

Since requester did not request reexamination of **claims 6, 9, 11 and 13-21** and did not assert the existence of a substantial new question of patentability (SNQ) for claims 6, 9, 11 and 13-21 (see 35 U.S.C. § 302; see also 37 CFR 1.510b and 1.515), claims 6, 9, 11 and 13-21 will not be reexamined (see MPEP 2240).

***Status of Claims***

Claims 1-5, 7, 8, 10, 12 and 22-26 of the '551 patent are currently subject to reexamination proceeding.

Claims 6, 9, 11 and 13-21 are not reexamined.

***Information Disclosure Statement***

The Information disclosure statement (PTO/SB/08) filed on 5/13/11 is considered.

***Priority***

The current '551 patent issued from application 09/349,833, filed on July 8, 1999; which is a continuation of application No. 08/978,450, filed on November 25, 1997, now US Patent 5,990,479.

***Ongoing Duty to Disclose***

The patent owner is reminded of the continuing responsibility under 37 CFR 1.565(a) to apprise the Office of any litigation activity, or other prior or concurrent proceeding, involving

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Patent No. 6,423,551 throughout the course of this reexamination proceeding. See MPEP §§ 2207, 2282 and 2286. The third party requester is also reminded of the ability to similarly appraise the Office of any such activity or proceeding throughout the course of this reexamination proceeding. See MPEP §§ 2207, 2282 and 2286.

***Substantial New Question of Patentability (SNQ) Raised By the Request***

For “a substantial new question of patentability” to be present, it is only necessary that:

A. The prior art patents and/or printed publications raise a substantial question of patentability regarding at least one claim i.e. the prior art teaching is such that there is a substantial likelihood that a reasonable examiner would consider the teaching to be important in deciding whether or not the claim is patentable; and it is not necessary that the prior art establish a prima facie case of unpatentability and;

B. The same question of patentability as to the claim has not been decided by the Office in a previous examination or pending reexamination of the patent or in a final holding of invalidity by the Federal Courts in a decision on the merits involving the claim. See MPEP 2242.

For a reexamination that was ordered on or after November 2, 2002 (the date of enactment of Public Law 107-273; see Section 13105, of the Patent and Trademark Office Authorization Act of 2002), reliance *solely* on old art (as the basis for a rejection) does not necessarily preclude the existence of a substantial new question of patentability (SNQ) that is based exclusively on that old art. Determinations on whether a SNQ exists in such an instance shall be based upon a fact-specific inquiry done on a case-by-case basis. For example, a SNQ may be based solely on old art where the old art is being presented/viewed in a new light, or in a different way, as compared with its use in the earlier concluded examination(s), in view of a material new argument or interpretation presented in the request. MPEP 2258.01.

***The Weiss '551 Patented Invention***

Claims 1-5, 7, 8, 10, 12 and 22-26 are currently subject to reexamination proceedings. Independent claim 1 recites a semiconductor nanocrystal compound; independent claims 23, 24, 25 and 26 recite a luminescent semiconductor nanocrystal compound. The independent claims are reiterated below.

**Claim 1.** A semiconductor nanocrystal compound, comprising:

- a) a water-soluble semiconductor nanocrystal comprising:
  - i) a core comprising a first semiconductor material; and
  - ii) a core-overcoating shell comprising a second semiconductor material; and
- b) a linking agent linked to said water-soluble semiconductor nanocrystal and capable of linking to an affinity molecule.

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**Claim 23.** A luminescent semiconductor nanocrystal compound, comprising:

- a) a water-soluble luminescent semiconductor nanocrystal comprising:
  - i) a core comprising a first semiconductor material; and
  - ii) a core-overcoating shell comprising a second semiconductor material; and
- b) a linking agent linked to said water-soluble luminescent semiconductor nanocrystal and capable of linking to an affinity molecule.

**Claim 24.** A luminescent semiconductor nanocrystal compound, comprising:

- a) a water-soluble luminescent semiconductor nanocrystal comprising:
  - i) a core comprising a first luminescent semiconductor nanocrystal material; and
  - ii) a core-overcoating shell comprising a second semiconductor material; and
- b) a linking agent linked to said water-soluble luminescent semiconductor nanocrystal and capable of linking to an affinity molecule.

**Claim 25.** A luminescent semiconductor nanocrystal compound, comprising:

- a) a water-soluble luminescent semiconductor nanocrystal comprising:
  - i) a core comprising a first semiconductor material; and
  - ii) a core-overcoating shell comprising a second luminescent semiconductor nanocrystal material; and
- b) a linking agent lined to said water-soluble luminescent semiconductor nanocrystal and capable of linking to an affinity molecule.

**Claim 26.** A luminescent semiconductor nanocrystal compound, comprising:

- a) a water-soluble luminescent semiconductor nanocrystal comprising:
  - i) a core comprising a first luminescent semiconductor nanocrystal material; and
  - ii) a core-overcoating shell comprising a second luminescent semiconductor nanocrystal material; and
- b) a linking agent linked to said water-soluble luminescent semiconductor nanocrystal and capable of linking to an affinity molecule.

***Documents cited by the Requester***

1. Bigham, S. R., PhD dissertation, AddRan College of Arts and Sciences, Texas Christian University; August, 1995. ("**Bigham**").
2. Rahina Mahtab *et al.*, Oligonucleotides, 117 J. Am. Chem. Soc. 117. pages 9099-9100 (1995). ("**Mahtab**").
3. US Patent 5,922,537. Ewart *et al.* (Issued on July 13, 1999 from the application 08/746,420, filed on November 8, 1996). ("**Ewart**").
4. Margaret A. Hines *et al.*, J. Phys. Chem. 100. pages 468-471 (1996). ("**Hines**").
5. Chad A. Mirkin *et al.*, Nature 382. pages 607-609 (1996). ("**Mirkin**").



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6. Method of Producing a Metal Sol Reagent Containing Colloidal Metal Particles of a Preselected Size, Canadian Application No. 2029942 (filed Nov. 14, 1990) (published May 17, 1991). ("**Brooks**").

7. A. Paul Alivisatos *et al.*, Organization of 'nanocrystal molecules' using DNA, Nature 382. pages 609-611 (1996). ("**Alivisatos I**").

8. US Patent 5,751,018. Alivisatos *et al.* (Issued on May 12, 1998 from the application 08/235,265 filed on April, 29, 1994). ("**Alivisatos II**").

9. V. L. Colvin *et al.*, J. Am. Chem. Soc. 114. pages 5221-5230 (1992). ("**Colvin**").

10. C. T. Dameron *et al.*, Nature 338. pages 596-597 (1989). ("**Dameron**").

Bigham, Hines, Ewart, Mirkin, Brooks, Colvin and Dameron were neither cited nor used to reject the present claims during the prosecution of the application that resulted in the current '551 patent.

Mahtab, Alivisatos I and Alivisatos II were considered by the Examiner during the prosecution of the '551 patent, but were not used to reject the claims of the '551 patent.

#### **Evidentiary references**

1. Declaration of Heather Milliken, Senior Acquisition Specialist, ProQuest LLC (Oct. 30, 2008).
2. U.S. Patent Application Publication No. US 2004/0105973 (filed Mar. 9, 2001) (published Jun. 3, 2004).
3. U.S. Patent No. 6,319,426 (filed Sep. 17, 1999) (issued Nov. 20, 2001).
4. Grant & Hackh's Chemical Dictionary 216 and 540 (Roger Grant & Claire Grant eds., 5th ed. 1987).
5. U.S. Patent No. 5,219,577 (filed Jun. 22, 1990) (issued Jun. 5, 1993).
6. U.S. Patent No. 5,429,824 (filed on December 15, 1992) (issued Jul. 4, 1995).
7. R.J. Wenthold *et al.*, Neuroscience. Vol 22, 897-912 (1987).
8. A Dictionary of Chemistry 84, 208, 306 and 528 (John Daintith ed., 3rd ed. 1996).

The Request did not show that the evidentiary references 2-8 raise substantial new question of patentability as to present claims 1-5, 7-8, 10, 12 and 22-26 of the present '551 patent.

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### *Scope of Reexamination*

The consideration under 35 U.S.C. 303 of a request for ex parte reexamination is limited to prior art patents and printed publications. See *Ex parte McGaughey*, 6 USPQ2d 1334, 1337 (Bd. Pat. App. & Inter. 1988). Thus an admission, per se, may not be the basis for establishing a substantial new question of patentability. See MPEP 2217.

Declaration of Heather Milliken was cited as evidentiary reference (see page 21 of the Request).

The Declarations alone is not a basis for raising a substantial new question of patentability of claims of the current '551 patent for the following reasons.

The Declaration by Heather Milliken was neither a printed publication, nor a patent. Thus the declaration by Heather Milliken alone does not raise a substantial new question of patentability of claims of US Patent 6,423,551. However, the Declarations will be considered in reexamination and may be used along with the printed prior art in rejecting the claims. (See MPEP 2217, 2258).

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### *Discussion of the SNQ proposed by the Requester*

1. The Requester considers that a substantial new question of patentability of claims 1-3, 5, 7, 8, 10, 12 and 22-26 of the '551 patent is raised by Bigham. Pages 17-18 and 21-81 of the request filed on 5/13/11 are hereby incorporated by reference. Bigham was neither used in rejecting the present claims nor cited during the prosecution of the application that resulted in the current patent.

Bigham describes the use of nucleic acids to stabilize semiconductor nanocrystals capable of emitting light, termed quantum semiconductor clusters or "Q-SC clusters" (see page 28). Bigham discloses that Q-CdS semiconductor clusters ranging in average particle size from 3 to 6 nm can be coated with polynucleotides (see page 63). According to Bigham, Q-CdS clusters can be prepared in an aqueous solution and stabilized by a polyphosphate, hexametaphosphate ( $\text{NaPO}_3$ )<sub>n</sub>, (HMP) (see page 21). Additionally, nucleic acids can be attached to the semiconductor nanocrystals through ribonucleotide phosphates that hydrogen bond with Cd-OH surface sites on hydroxide-layered Q-CdS nanocrystals (see Fig. 27, page 88), or by hydrogen bonding between

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an N-H moiety of an accessible nucleic acid base and an anionic sulfide site of the Q-CdS nanocrystal (see page 88; and Fig 28, page 89). Furthermore, poly-lysine can also be linked to the semiconductor nanocrystals via non-covalent interactions with nucleic acids attached to the semiconductor nanocrystals (see pages 146-147).

There is a substantial likelihood that a reasonable examiner would consider the teachings of Bigham important in deciding the patentability of claims 1-3, 5, 7-8, 10, 12 and 22-26 of the present Patent 6,423,551. Accordingly, Bigham raises a substantial new question of patentability as to claims 1-3, 5, 7-8, 10, 12 and 22-26.

2. The Requester considers that a substantial new question of patentability of claims 1-3, 5, 7, 8, 10, 12 and 22-26 of the '551 patent is raised by Mahtab. Pages 18, 81-116 of the request filed on 5/13/11 are hereby incorporated by reference. Mahtab was considered by the Examiner during the prosecution of the '551 patent, but was not used to reject the claims of the '551 patent.

Mahtab describes a method of probing DNA structure through the adsorption of oligonucleotides to quantum dots of the semiconductor CdS. Surface-sensitive luminescence of these particles allowed for the discrimination between "straight," "bent," and "kinked" oligonucleotides (see page 9099, left Column). The CdS particles used by Mahtab were 4 nm in size, and were surface-enriched with Cd<sup>2+</sup>. The surface-enriched Cd<sup>2+</sup> provided a cationic surface for the oligonucleotides to bind to (see page 9099, left Column). Enriching the surface of the CdS particles with Cd<sup>2+</sup> led the particles to photoluminescence bright yellow. Such photoluminescence was sensitive to the nature of the oligonucleotides bound to the particles' surface (see page 9099, left Column).

There is a substantial likelihood that a reasonable examiner would consider the teachings of Mahtab important in deciding the patentability of claims 1-3, 5, 7-8, 10, 12 and 22-26 of the present Patent 6,423,551. Accordingly, Mahtab raises a substantial new question of patentability as to claims 1-3, 5, 7-8, 10, 12 and 22-26.

3. The Requester considers that a substantial new question of patentability of claims 1, 2, 3, 5, 22, 23 and 24 of the '551 patent is raised by Ewart (US Patent 5,922,537). Additionally the Requester considers that Ewart in combination with Bigham and Hines or Mahtab raises a

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substantial new question of patentability of claims 7, 8, 10, 12, 25 and 26 of the '551 patent. Pages 18, 116-142, 174-181, 279-287 and 385-391 of the request filed on 5/13/11 are hereby incorporated by reference. Ewart was neither used in rejecting the present claims nor cited during the prosecution of the application that resulted in the current patent.

Ewart describes nanoparticle reporters that can be used with biosensors to detect the presence of an analyte in a sample. Particle reporters are entities used to label biosensors which greatly enhance the sensitivity of the biosensors (see Abstract; and Columns 3-4). Such nanoparticles include electroluminescent semiconductor materials comprising CuS coated ZnS:Mn (see Columns 10-11). The nanoparticle reporters can range in size from 1 to 1000 nm (see Ewart at Claim 10). Ewart teaches that the core particles may be made of a variety of materials including metals or ceramics. The preferred metals include chromium, rubidium, iron, zinc, selenium, nickel, gold, silver and platinum. Preferred ceramic materials include silicon dioxide, titanium, dioxide, aluminum oxide, ruthenium oxide and tin oxide (see column 5, lines 18-23). Ewart further teaches that the core particles are coated with cellobiose or with -OH functional group, which may then be linked to affinity ligands such as antibodies, binding proteins, lectins, enzymes and receptors that can bind to the sample analyte (see columns 5-7 and Table in Column 8).

There is a substantial likelihood that a reasonable examiner would consider the teachings of Ewart alone or in combination with Bigham, Hines or Mahtab important in deciding the patentability of claims 1-3, 5, 7-8, 10, 12 and 22-26 of the present Patent 6,423,551.

Accordingly, Ewart raises a substantial new question of patentability as to claims 1-3, 5, 7-8, 10, 12 and 22-26.

4. The Requester considers that a substantial new question of patentability of claims 1-3, 5, 7-8, 10, 12, 22-25 and 26 of the '551 patent is raised by Mirkin in combination with Bigham, Hines or Mahtab. Pages 19, 142-158, 246-262 and 355-370 of the request filed on 5/13/11 are hereby incorporated by reference. Mirkin was neither used in rejecting the present claims nor cited during the prosecution of the application that resulted in the current patent.

Mirkin discloses that colloidal particles of metals and semiconductors have potentially useful optical, optoelectrical and material properties that derive from their small size (see page

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607, Abstract). Mirkin describes a method for assembling colloidal gold nanoparticles into macroscopic aggregates. The methods used in Mirkin involve attaching non-complimentary DNA oligonucleotides capped with thiol groups to the surface of 13 nm gold particles. When oligonucleotides with sequences complimentary to the oligonucleotides attached to the gold particles are mixed with the DNA labeled nanoparticles, the nanoparticles self-assemble into aggregates (see page 607, Abstract). Mirkin describes the production of affinity molecules attached to gold nanoparticles via linkers (see page 609).

There is a substantial likelihood that a reasonable examiner would consider the teachings of Mirkin in combination with Bigham, Hines or Mahtab important in deciding the patentability of claims 1-3, 5, 7-8, 10, 12 and 22-26 of the present Patent 6,423,551. Accordingly, Mirkin in combination with Bigham and Hines or Mahtab raise a substantial new question of patentability as to claims 1-3, 5, 7-8, 10, 12 and 22-26.

5. The Requester considers that a substantial new question of patentability of claims 1-3, 5, 7-8, 10, 12, 22-25 and 26 of the '551 patent is raised by Brooks in combination with Bigham or Hines. Pages 19, 158-174 and 262-279 of the request filed on 5/13/11 are hereby incorporated by reference. Brooks was neither used in rejecting the present claims nor cited during the prosecution of the application that resulted in the current patent.

Brooks describes a method of producing metal "sol" (*i. e.*, a colloidal solution) reagents that can be used in a variety of immunoassay systems (see page 26, Abstract). The reagents disclosed by Brooks contain metal sol particles of a preselected size, for example, from about 20 nm to about 92 nm (see page 9). The metal sol particles can be made of a transition metal compound (such as metal sulfides) (see page 3). The method of Brooks allows for the attachment of immunochemically reactive components to the surface of colloidal gold particles (see pages 8-9). Particles having different immunochemical specificities can be mixed to produce reagents having multiple selected immunochemical specificities. The particles can be coated with a coupling compound and then bound with at least one selected immunochemically reactive component (see page 26, abstract and page 8). Such coupling compounds include, for example, glutaraldehyde (see page 9 and page 23, claim 6). The immunochemically reactive components linked to the particles include antibodies, proteins, polypeptides, and nucleic acids (see page 8).

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There is a substantial likelihood that a reasonable examiner would consider the teachings of Brooks in combination with Bigham or Hines important in deciding the patentability of claims 1-3, 5, 7-8, 10, 12 and 22-26 of the present Patent 6,423,551. Accordingly, Brooks in combination with Bigham or Hines raise a substantial new question of patentability as to claims 1-3, 5, 7-8, 10, 12 and 22-26.

6. The Requester considers that a substantial new question of patentability of claims 1-3, 5, 7-8, 10, 12 and 22-26 of the '551 patent is raised by Alivisatos I in combination with Bigham, Hines or Mahtab. Pages 20, 287-303 and 391-406 of the request filed on 5/13/11 are hereby incorporated by reference. Alivisatos I was considered by the Examiner during the prosecution of the '551 patent, but was not used to reject the claims of the '551 patent.

Alivisatos I describes the synthesis of "nanocrystal molecules" whereby gold nanocrystals are organized into spatially defined structures based on nucleic acid base pairings (see Abstract). The methods of Alivisatos I comprise attaching single-stranded DNA oligonucleotides to individual nanocrystals, which are then assembled into dimers or trimers by adding a complimentary single-stranded nucleic acid template (see page 609, Abstract). The nanocrystals used by Alivisatos I were 1.4 nm in diameter, and were passivated with water-soluble phosphine ligands (see page 610, Col. 2). Nucleic acid oligonucleotides were attached to the nanoparticles by coupling an N-propylmaleimide substituent present on each nanoparticle to a sulphhydryl group incorporated into the nucleic acids (see page 610, Col. 2). Once the nanoparticle-nucleic acid complexes were made, they were combined with 37-nucleotide single-stranded nucleic acid templates that the nanoparticles bound to based on Watson-Crick base-pairing (see page 609, Abstract and pages 610-611 611).

There is a substantial likelihood that a reasonable examiner would consider the teachings of Alivisatos I in combination with Bigham, Hines or Mahtab important in deciding the patentability of claims 1-3, 5, 7-8, 10, 12 and 22-26 of the present Patent 6,423,551. Accordingly, Alivisatos I in combination with Bigham, Hines or Mahtab raises a substantial new question of patentability as to claims 1-3, 5, 7-8, 10, 12 and 22-26.

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7. The Requester considers that a substantial new question of patentability of claims 1-5, 7-8, 10, 12 and 22-26 of the '551 patent is raised by Alivisatos II in combination with Bigham, Hines or Mahtab. Pages 20, 197-214, 303-321 and 406-422 of the request filed on 5/13/11 are hereby incorporated by reference. Alivisatos II was considered by the Examiner during the prosecution of the '551 patent, but was not used to reject the claims of the '551 patent.

Alivisatos II describes methods for attaching semiconductor nanocrystals, which ordinarily fluoresce strongly, to solid inorganic surfaces (see Abstract; and column 2). One method used by Alivisatos II comprises coating semiconductor nanocrystals with compounds that allow the nanocrystals to attach to the surfaces (see Abstract; Column 3; and Figure 1B). Alivisatos II discloses that cadmium sulfide nanocrystals were synthesized in water and coated with carboxylates, wherein the carboxylates were used as a linking agent to attach the nanocrystals to an aluminum surface (see Column 3; and Fig. 1B).

There is a substantial likelihood that a reasonable examiner would consider the teachings of Alivisatos II in combination with Bigham, Hines or Mahtab important in deciding the patentability of claims 1-3, 5, 7-8, 10, 12 and 22-26 of the present Patent 6,423,551. Accordingly, Alivisatos II in combination with Bigham, Hines or Mahtab raises a substantial new question of patentability as to claims 1-3, 5, 7-8, 10, 12 and 22-26.

8. The Requester considers that a substantial new question of patentability of claims 1-3, 5, 7-8, 10, 12 and 22-26 of the '551 patent is raised by Colvin in combination with Bigham, Hines or Mahtab. Pages 20-21, 214-231, 321-339 and 422-438 of the request filed on 5/13/11 are hereby incorporated by reference. Colvin was neither used in rejecting the present claims nor cited during the prosecution of the application that resulted in the current patent.

Colvin describes methods for attaching cadmium sulfide semiconductor nanocrystals, which ordinarily fluoresce strongly, to solid inorganic surfaces (see page 5221, Abstract and page 5222 right column). The nanocrystals can range in size from 1 to 10 nm (see page 5221, right Column). Colvin discloses coating the semiconductor nanocrystals with compounds that allow the nanocrystals to attach to the surfaces (see page 5222, left Column). Colvin discloses that cadmium sulfide nanocrystals were synthesized in water and coated with carboxylates,



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wherein the carboxylates were used to as a linking agent to attach the nanocrystals to an aluminum surface (see page 5223, left Column).

There is a substantial likelihood that a reasonable examiner would consider the teachings of Colvin in combination with Bigham, Hines or Mahtab important in deciding the patentability of claims 1-3, 5, 7-8, 10, 12 and 22-26 of the present Patent 6,423,551. Accordingly, Colvin in combination with Bigham, Hines or Mahtab raises a substantial new question of patentability as to claims 1-3, 5, 7-8, 10, 12 and 22-26.

9. The Requester considers that a substantial new question of patentability of claims 1-3, 5, 7-8, 10, 12 and 22-26 of the '551 patent is raised by Dameron in combination with Bigham, Hines or Mahtab. Pages 21, 231-246, 339-355 and 438-452 of the request filed on 5/13/11 are hereby incorporated by reference. Dameron was neither used in rejecting the present claims nor cited during the prosecution of the application that resulted in the current patent.

Dameron describes the biosynthesis of quantum crystallites in the yeasts *Candida glabrata* and *Schizosaccharomyces pombe*, by culturing the yeasts in the presence of cadmium salts. According to Dameron, short chelating peptides of general structure  $(\gamma\text{-Glu-Cys})_n\text{-Gly}$  attach to the cadmium salts and control the nucleation and growth of CdS semiconductor crystallites in the yeasts (see page 596, Abstract; and page 596, right Column). The intracellular semiconductor nanoparticles have a diameter of 2 nm, while extracellular particles were identified that had a diameter of  $2.9 \pm 0.5$  nm (see page. 596, Abstract; page 596, right Column; and page 597, left Column).

There is a substantial likelihood that a reasonable examiner would consider the teachings of Dameron in combination with Bigham, Hines or Mahtab important in deciding the patentability of claims 1-3, 5, 7-8, 10, 12 and 22-26 of the present Patent 6,423,551. Accordingly, Dameron in combination with Bigham, Hines or Mahtab raises a substantial new question of patentability as to claims 1-3, 5, 7-8, 10, 12 and 22-26.

10. The Requester considers that a substantial new question of patentability of claims 1-3, 5, 7-8, 10, 12 and 22-26 of the '551 patent is raised by Hines in combination with primary



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references Mirkin, Brooks, Ewart, Alivisatos I, Alivisatos II, Colvin and Dameron. Pages 18-19 and 246-339 of the request filed on 5/13/11 are hereby incorporated by reference. Hines was neither used in rejecting the present claims nor cited during the prosecution of the application that resulted in the current patent.

Hines describes the synthesis and characteristics of ZnS-capped CdSe semiconductor nanocrystals (see page. 468, Abstract; and page 468, right Column). The semiconductor nanocrystals disclosed by Hines comprised a CdSe core having a diameter of 2.7 to 3 nm, and a ZnS shell having a thickness of  $0.6 \pm 0.3$  nm (see page 468, Abstract; page 469, and page 469, right Column). The semiconductor nanocrystals exhibited strong and stable luminescence (see page 468, Abstract; and page 468, right Column).

There is a substantial likelihood that a reasonable examiner would consider the teachings of Hines in combination with primary references Mirkin, Brooks, Ewart, Alivisatos I, Alivisatos II, Colvin and Dameron important in deciding the patentability of claims 1-5, 7-8, 10, 12 and 22-26 of the present Patent 6,423,551. Accordingly, Hines in combination with primary references Mirkin, Brooks, Ewart, Alivisatos I, Alivisatos II, Colvin and Dameron raises a substantial new question of patentability as to claims 1-5, 7-8, 10, 12 and 22-26.

### ***Conclusion***

In view of the above, the request for reexamination is **GRANTED**.

**Claims 1-5, 7-8, 10, 12 and 22-26** of United States Patent Number 6,423,551 will be reexamined.

Claims 6, 9, 11 and 13-21 are not reexamined.

### ***Extensions of Time***

Extensions of time under 37 CFR 1.136 (a) will not be permitted in these proceedings because the provisions of 37 CFR 1.136 apply only to an applicant and not to parties in a

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reexamination proceeding. Additionally, 35 U.S.C. 305 requires that ex parte reexamination proceedings "will be concluded with special dispatch" (37 CFR 1.555(a)). Extensions of time in ex parte reexamination proceedings are provided for in 37 CFR 1.550(c).

#### ***Patent Owner Amendment***

Patent owner is notified that any proposed amendment to the specification and/or claims in this reexamination proceeding must comply with 37 CFR 1.530(d)-(j), must be formally presented pursuant to 37 CFR 1.52(a) and (b), and must contain any fees required by 37 CFR 1.20(c).

#### ***Future Correspondences***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Padmashri Ponnaluri whose telephone number is 571-272-0809. The examiner can normally be reached on Monday through Friday between 7 AM and 3.30 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor Deborah Jones can be reached on 571-272-1535. The fax phone number for the organization where this application or proceeding is assigned is 571-273-9900.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

All correspondence relating to this Ex parte Reexamination proceeding should be directed to:

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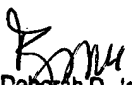
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64811 U.S. PTO

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05/93/449

Exhibit PA-SB/08A/B

Re exam Control No.:

Applicant:

Weiss et al.

90009910

U.S. Patent No. 6,423,551

**Information Disclosure Citation  
In an Application**

Attorney Docket No.  
079429.0105

Group Art Unit: 1641  
Confirmation No.: 7207

Filing Date:  
Jul. 8, 1999

**U.S. PATENT DOCUMENTS**

*Exam Initial		DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE
/PP/	A	5,922,537	Jul. 13, 1999	Ewart et al.	435	006	Nov. 8, 1996
	B	5,751,018	May 12, 1998	Alivisatos et al.	257	064	Apr. 29, 1994
	C	5,219,577	Jun. 15, 1993	Kossovsky et al.	424	494	Jun. 22, 1990
	D	5,429,824	Jul. 4, 1995	June	424	489	Dec. 15, 1992
	E	6,319,426	Nov. 20, 2001	Bawendi et al.	252	301.4 R	Sep. 17, 1999
	F	2004/0105973	Jun. 3, 2004	Nabiev et al.	428	331	Mar. 9, 2001

**FOREIGN PATENT DOCUMENTS**

*Exam Initial		DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
							YES	NO
/PP/	G	2029942	May 17, 1991	CA				X
	H							


*Exam Initial		DOCUMENT (Including Author, Title, Source, and Pertinent Pages)	DATE
/PP/	I	Bigham, S. R., "The Influence of Polynucleotide Stabilizers on Selected Properties of Quantum-Confined Cadmium Sulfide Semiconductor Clusters." PhD dissertation, AddRan College of Arts and Sciences, Texas Christian University, August, 1995, pp. 1-158. ("Bigham").	February 1996
	J	Rahina Mahtab et al., <i>Protein-Sized Quantum Dot Luminescence Can Distinguish between "Straight", "Bent", and "Kinked" Oligonucleotides</i> , 117 J. Am. Chem. Soc., pp. 9099-9100 (1995). ("Mahtab").	Sep. 1995
	K	Margaret A. Hines et al., <i>Synthesis and Characterization of Strongly Luminescing ZnS-Capped CdSe Nanocrystals</i> , 100 J. Phys. Chem., pp. 468-471 (1996). ("Hines").	1996
	L	Chad A. Mirkin et al., <i>A DNA-based Method For Rationally Assembling Nanoparticles Into Macroscopic Materials</i> , 382 Nature, pp. 607-609 (1996). ("Mirkin").	Aug. 15, 1996
	M	A. Paul Alivisatos et al., <i>Organization of 'nanocrystal molecules' using DNA</i> , 382 Nature, pp. 609-611 (1996). ("Alivisatos I").	Aug. 15, 1996
	N	V. L. Colvin et al., <i>Semiconductor Nanocrystals Covalently Bound to Metal Surfaces with Self-Assembled Monolayers</i> , 114 J. Am. Chem. Soc., pp. 5221-5230 (1992). ("Colvin").	Jun. 1992
	O	C. T. Dameron et al., <i>Biosynthesis of Cadmium Sulphide Quantum Semiconductor Crystallites</i> , 338 Nature, pp. 596-597 (1989). ("Dameron").	Apr. 13, 1989

NY02:712714.1

PTO-1449 Exhibit PA-SB/08A/B  <b>Information Disclosure Citation In an Application</b>	<b>Re exam Control No.:</b>		<b>Applicant:</b> Weiss et al. U.S. Patent No. 6,423,551
	<b>Attorney Docket No.</b> 079429.0105	<b>Group Art Unit: 1641</b> <b>Confirmation No.: 7207</b>	<b>Filing Date:</b> Jul. 8, 1999

/PP/	P	Complaint filed October 12, 2010 in the case of <i>Life Technologies Corp., Molecular Probes, Inc. and The Regents of the University of California v. eBioscience, Inc.</i> , Case No. 10-CV-2127-IEG (NLS) (S.D. Cal.), pp. 1-6.	Oct. 12, 2010
	Q	Claim construction of the '069 Patent Owner in <i>Invitrogen Corporation, Quantum Dot Corporation, Molecular Probes, Inc. and Regents Of the University Of California v. Evident Technologies, Inc.</i> , Case No. 6:08-cv-00163-LED-JDL (E.D. Tex.), pp. B-1 – B-20.	Jun. 24, 2009
	R	R. J. Wenthold et al., <i>Glycine immunoreactivity localized in the cochlear nucleus and superior olivary complex</i> , 22 Neuroscience, pp. 897-912 (1987).	Sep. 1987
	S	<u>Grant &amp; Hackh's Chemical Dictionary</u> pp. 216 and 540 (Roger Grant & Claire Grant eds., 5th ed. 1987).	1996
	T	<u>A Dictionary of Chemistry</u> pp. 84, 208, 306 and 528 (John Daintith ed., 3rd ed. 1996).	1996
↓	U	Declaration of Heather Milliken, Senior Acquisition Specialist, ProQuest LLC (Oct. 30, 2008), pp. 1-2.	Oct. 30, 2008
/Padmashri Ponnaluri/		DATE CONSIDERED 06/20/2011	
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U.S. PATENT AND TRADEMARK OFFICE

<b>Reexamination</b>  	Application/Control No.	Applicant(s)/Patent Under Reexamination
	90009910	6423551
	Certificate Date	Certificate Number
		C1

Requester Correspondence Address:	<input type="checkbox"/> Patent Owner	<input checked="" type="checkbox"/> Third Party
<p>BAKER BOTTS L.L.P.  30 ROCKEFELLER PLAZA  44TH FLOOR  NEW YORK, NY 10112-4498</p>		

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3:10CV2127		
6:08CV164		
3:08CV1729		
6:08CV163		

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TYPE OF PROCEEDING	NUMBER
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CERTIFICATE OF SERVICE

I hereby certify that, on June 28, 2011, the foregoing document entitled **NOTICE OF PATENT OFFICE ORDER GRANTING REQUEST FOR REEXAMINATION OF PATENTS-IN-SUIT NO. 6,423,551** was filed via the Case Management/Electronic Case Filing (CM/ECF) system, and was served on all parties via the automated generation and e-mailing of a Notice of Electronic Filing (NEF) by the CM/ECF system to each of the following persons:

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